

ABSTRACT

An opaque slurry chemical constituent measurement system includes a cross-flow or membrane filter having a porous filter element connected between a global slurry loop and a spectrometer. The opaque slurry particles cannot pass through the filter element but pass through the filter cartridge into the day tank, while the chemical constituent to be measured permeates through the filter element to the spectrometer, where it is measured, and thence to a reservoir. About once every five minutes the porous filter element is reverse flushed for less than a second to clear the filter pores. One to several times per hour, the reservoir is emptied into the day tank. The system provides essentially continuous measurement of the slurry chemical composition, does not consume reagent chemicals, does not create a chemical waste stream, and provides high reliability and low maintenance by preventing the abrasive slurry particles from contacting the fluidic sampling valves.